

Name: _____

Period _____

Pre-Lab (22pts)

THE MICROSCOPE

Background:

The light microscope is a tool that you will use repeatedly in the laboratory to reveal tiny structures and details that cannot be seen with the unaided eye. Unfortunately, many students do not refine or polish their microscope skills to their maximum potential and, thus, consistently miss a substantial portion of the material presented in laboratory exercises that utilize microscopes. Whether you have used or haven't used a microscope before, there is always room for learning and improvement. Your first goal is to familiarize yourself with the mechanical parts of the microscope. Before you can perform higher skilled labs you must first demonstrate proficiency and learn how your equipment works.

Care of the microscope:

- Be sure to carry the microscope with both hands. One hand on the microscope arm and the other hand under the base.
- Cleaning of all the lenses is to only be done with dry lens paper because they are very delicate and scratch easily.
- When storing a microscope wrap cord around base, place on the low objective and place cover over the microscope.
- Make sure to remove lenses from the microscope stage and base.

Parts and functions of the Parts:

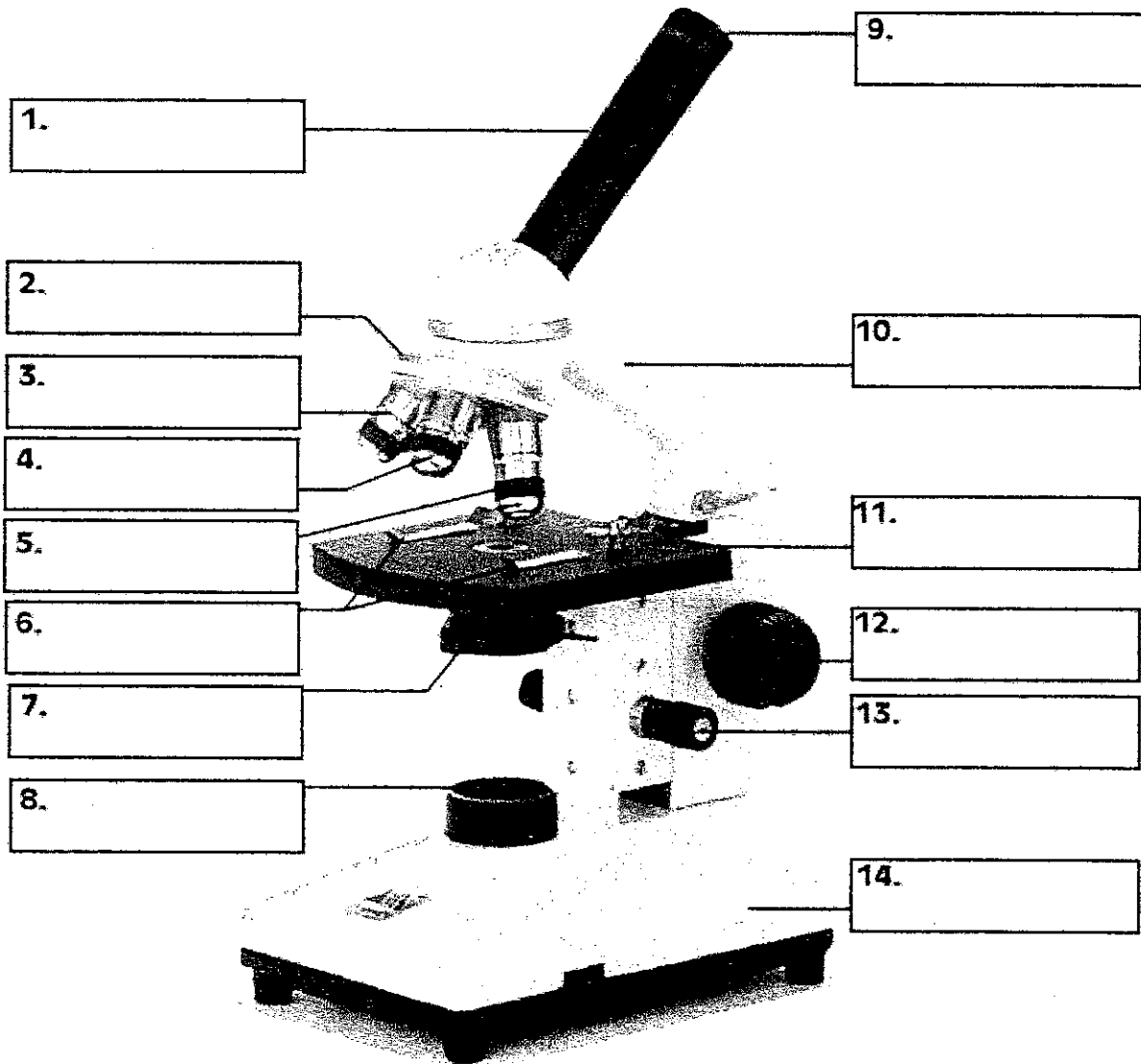
Knowing how to label a microscope is important because it shows that you know the different parts of a microscope. More important is that you know the function of each part. Here is the parts of a microscope and function.

1. Eye piece- Is the piece that you look through, each objective lens is multiplied by 10 when it come from this part.
2. Body tube- Extends the eye piece; transfers object to the objective.
3. Stage- Slide on placed on this.
4. Arm & base- You use these parts to carry the microscope.

5. Coarse adjustment- Moves the stage up and down drastically in order to focus.
6. Fine adjustment- Use this to focus the slide more completely: brings slide into perfect focus.
7. Revolving nose piece- Turns the different objectives.
8. Stage clips- Holds slides in place.
9. High power objective- The lens that magnifies an object 40X.
10. Low power objective- The lens that magnifies an object 10X.
11. Diaphragm- Controls the amount of light.
12. Lamp or light source- Where the light comes from on the base.

Labeling of the Microscope: Label the Microscope (14pts)

It will be your job to label a microscope in the pre-lab. Use the definitions given above and other resources such as the internet and your book to label a microscope.



Magnification:

Together, the ocular and objective lenses constitute the magnifying system of your microscope. The ocular lens supplies the secondary magnification of the initial image so the details are clear enough for normal viewing. You can easily calculate the total magnification of a specimen by multiplying the independent magnification values of each lens.

Field of View:

The field of view is the circular field that you see when you look through the microscope. The diameter of the field of view changes with different magnifications. The higher the power lens used the smaller the field of view.

Pre-Lab Questions: *Be sure to answer in sentence form and write clearly for full credit*

1. What is the proper way to carry and transport a microscope?
2. As stated in the background section of the pre-lab. Unfortunately, many students do not refine their microscope skills to their _____ potential.
3. When storing or putting a microscope away after use what **3** (three) things must you do?
4. When precisely bringing an image into perfect focus, what part of the microscope allows you to perform this?
5. How many objective lenses are on the microscope that you had to label?
6. The field of view gets larger when using a higher magnification and objective lens. (T/F)

If false why do you think the field of view gets smaller?

7. What two (2) types of lenses account or constitute the magnifying system of your microscope?
8. How do you calculate the total magnification of a specimen?